We Claim:

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1   1. A method for operation of a workflow system for processing an object by
2   executing a plurality of tasks, each of said tasks having an associated enabling condition
3   indicating whether the task is to be executed for said object, and wherein execution of at
4   least one of said tasks results in the initiation of a side-effect action performed by a
5   component external to said workflow system, said method comprising the step of:
6   determining whether a task is to be eagerly executed based at least in part on the
7   evaluation of enabling conditions and whether execution of the task results in the
8   initiation of a side-effect action.

1   2. The method of claim 1 further comprising the step of:
2   determining that a particular task whose execution results in the initiation of a
3   side-effect action is eligible for eager execution only if it is determined that the enabling
4   condition associated with the particular task will evaluate to true.

1   3. The method of claim 1 further comprising the step of:
2   determining that a particular task whose execution does not result in the initiation
3   of a side-effect action is eligible for eager execution prior to determining that the
4   enabling condition associated with the particular task will evaluate to true.

1   4. The method of claim 1 wherein said step of determining whether a task is to be
2   eagerly executed further comprises the step of:
3   partially evaluating said enabling conditions.

1   5. The method of claim 1 wherein said step of determining whether a task is to be
2   eagerly executed is further based on whether the task contributes to the production of a
3   target value.

1   6. The method of claim 1 further comprising the step of:
2   determining that a particular task is unneeded for processing of the object based at
3   least in part on partial evaluation of an enabling condition of a task which depends on
4   output of said particular task.

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7. The method of claim 1 further comprising the step of:

determining that a particular task is necessary for processing of the object based at least in part on the evaluation of enabling conditions of tasks that depend on said particular task.

8. The method of claim 1 further comprising the step of:

determining that a particular task is necessary for processing of the object based at least in part on the evaluation of enabling conditions that depend on the output of said particular task.

9. The method of claim 1 wherein said step of determining is performed repeatedly during the processing of the object.

10. The method of claim 1 wherein a memory of said workflow system stores a graph representing data flow dependencies and enabling flow dependencies between tasks and enabling conditions, said method further comprising the step of:

propagating changes through said graph based on new outputs of completed tasks.

11. The method of claim 10 wherein said step of propagating changes is based on predefined propagation rules.

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12. A workflow system for processing an object by executing a plurality of tasks, each of said tasks having an associated enabling condition indicating whether the task is to be executed for said the object, and wherein execution of at least one of said tasks results in the initiation of a side-effect action performed by a component external to said workflow system, said system comprising:

means for determining whether a task is to be eagerly executed based at least in part on the evaluation of enabling conditions and whether execution of the task results in the initiation of a side-effect action.

13. The workflow system of claim 12 further comprising:

means for determining that a particular task whose execution results in the initiation of a side-effect action is eligible for eager execution only if it is determined that the enabling condition associated with the particular task will evaluate to true.

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14. The workflow system of claim 12 further comprising:

means for determining that a particular task whose execution does not result in the initiation of a side-effect action is eligible for eager execution prior to determining that the enabling condition associated with the particular task will evaluate to true.

15. The workflow system of claim 12 wherein said means for determining whether a task is to be eagerly executed further comprises:

means for partially evaluating said enabling conditions.

16. The workflow system of claim 12 wherein said means for determining whether a task is to be eagerly executed further comprises:

means for determining whether the task contributes to the production of a target value.

17. The workflow system of claim 12 further comprising:

means for determining that a particular task is unneeded for processing of the object based at least in part on partial evaluation of an enabling condition of a task which depends on output of said particular task.

18. The workflow system of claim 12 further comprising:

means for determining that a particular task is necessary for processing of the object based at least in part on the evaluation of enabling conditions of tasks that depend on said particular task.

19. The workflow system of claim 12 further comprising:

means for determining that a particular task is necessary for processing of the object based at least in part on the evaluation of enabling conditions that depend on the output of said particular task.

20. The workflow system of claim 12 further comprising:

a memory for storing a graph representing data flow dependencies and enabling flow dependencies between tasks and enabling conditions; and

means for propagating changes through said graph based on new outputs of completed tasks.

1   21. The workflow system of claim 20 wherein said memory stores predefined

2   propagation rules and wherein said means for propagating changes further comprises

3   means for propagating changes based on said predefined propagation rules.

1   22. A workflow system for processing an object, said system comprising:

2   a plurality of tasks;

3   a plurality of enabling conditions, each associated with one of said tasks and

4   indicating whether its associated task is to be executed for said object;

5   an execution engine for executing said tasks, wherein execution of at least one of

6   said tasks results in the initiation of a side-effect action performed by a component

7   external to said workflow system;

8   a candidate task pool for storing tasks which are candidates for eager execution;

9   and

10   a prequalifier configured for maintaining said candidate task pool and for

11   determining whether a task is to be eagerly executed based at least in part on the

12   evaluation of enabling conditions and whether execution of the task results in the

13   initiation of a side-effect action.

1   23. The workflow system of claim 22 wherein said prequalifier is further

2   configured for determining that a particular task whose execution results in the initiation

3   of a side-effect action is eligible for eager execution only if it determined that the

4   enabling condition associated with the particular task will evaluate to true.

1   24. The workflow system of claim 22 wherein said prequalifier is further

2   configured for determining that a particular task whose execution does not result in the

3   initiation of a side-effect action is eligible for eager execution prior to determining that

4   the enabling condition associated with the particular task will evaluate to true.

1   25. The workflow system of claim 22 wherein said prequalifier is further

2   configured for determining whether a task is to be eagerly executed by partially

3   evaluating said enabling conditions.

1   26. The workflow system of claim 22 wherein said prequalifier is further

2   configured for determining whether a task is to be eagerly executed based on whether the

3   task contributes to the production of a target value.

1   27. The workflow system of claim 22 wherein said prequalifier is further

2   configured for determining that a particular task is unneeded for processing of the object

3   based at least in part on partial evaluation of an enabling condition of a task which

4   depends on output of said particular task.

1   28. The workflow system of claim 22 wherein said prequalifier is further

2   configured for determining that a particular task is necessary for processing of the object

3   based at least in part on the evaluation of enabling conditions of tasks that depend on said

4   particular task.

1   29. The workflow system of claim 22 wherein said prequalifier is further

2   configured for determining that a particular task is necessary for processing of the object

3   based at least in part on the evaluation of enabling conditions that depend on the output of

4   said particular task.

1   30. The workflow system of claim 22 further comprising a stored graph

2   representing data flow dependencies and enabling flow dependencies between tasks and

3   enabling conditions, wherein said prequalifier is further configured for propagating

4   changes through said graph based on new outputs of completed tasks.

1   31. The workflow system of claim 30 further comprising stored predefined

2   propagation rules wherein said prequalifier is further configured for propagating changes

3   through said graph by applying said propagation rules.